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10/811,361

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EXAMINER

LEE, SIU M

ART UNIT

PAPER NUMBER

2611

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/811,361

Applicant(s)

MACK ET AL.

Examiner

Siu M. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Page 5, line 10, register 34 is not in figure 2, the correct label according to figure 2 is 14.

Page 5, line 13, the examiner suggest to delete "N or" from the paragraph.

Appropriate correction is required.

Drawings

2. The drawings are objected to because the labels in figure 3 and 6 are too small to read. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2 and 10-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(1) Regarding claim 2:

Claim 2 depends on claim 1. Claim 1 recites the limitation that second pseudo-noise code is a time-reversed version of the first pseudo-noise code. Claim 2 further limit that transmitting a second pseudo-noise code further comprising transmitting a second pseudo-noise code that is bit-wise inverted from the first pseudo noise code. Since the second pseudo-noise code is already time reversed of the first code in claim 1, doing the bit-wise inverted from the first pseudo noise code in claim 2 will convert the time reversed pseudo-noise code 2 into a bit-wise inverted version of pseudo-noise code 1 without the time-reserve.

(2) Regarding claim 10:

Claim 10 recites the limitation of "storing the code for later analysis as a received code". It is unclear whether the first pn code or the second pn code is being stored.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 2, 4, 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Mayrargue (US 2004/0234005 A1).

(1) Regarding claim 1:

Mayrargue discloses a transmission method comprising transmitting a first pseudo-noise code (for $k/2$ transmission, one or more given spread spectrum code is used, paragraph 0141, lines 3) and transmitting a second pseudo-noise code (for the other $k/2$ transmissions the conjugates and temporal inverse of these codes are used, paragraph 0141, lines 4-5), wherein the second pseudo-noise code is a time-reversed version (a code obtained from the code of the first symbol by inverting the direction of time, paragraph 0136, lines 3-4, temporal inverse of these codes are used, paragraph 0141, lines 4-5) of the first pseudo-noise code.

(2) Regarding claim 2:

Mayrargue further discloses a method of transmitting a second pseudo-noise code (spread spectrum code) that is bit-wise inverted from the first pseudo-noise code

(the symbols to be transmitted are considered pairwise, they are transmitted while inverting the symbols of the pair on one antenna by inverted the signs of the chosen symbols, and transmitting the conjugate of chosen symbols, so as to obtain a 2×2 transmission matrix which is orthogonal, paragraph 0033).

(3) Regarding claim 4:

Mayrargue further discloses that the method comprising using the first and second pseudo-noise codes to establish a communication link with a receiver of the first and second code (the signal being transmitted on a single antenna, and received on two antennas, the propagation channels linking the single transmitter to each receiver being the same one respectively as those linking each of the transmission antennas to the single receiver of STTD, paragraph 0032, lines 6-11).

(4) Regarding claim 5:

Mayrargue further discloses that transmitting a pseudo-noise code wherein selection of the code depends upon a type of transmission device (the selection of the pair of code depends on the transmitter that has n antennas, wherein n greater than or equal to 2, paragraph 0082, lines 1-2).

7. Claim 8 is rejected under 35 U.S.C. 102(b) as being anticipated by Sugita et al. (US 5,862,172).

Sugita et al. discloses a method of receiving communication codes, comprising; receiving a transmission including first and a second pseudo-noise codes form into a pair (the PN detecting parts 28 and 29 in figure 3B detect the first and second PN

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codes S20 and S21 from the initial synchronizing signal portion in the received signal S27, column 5, lines 51-53);

comparing the first pseudo-noise code to the second pseudo-noise code (the PN deciding unit 45 decide by using the correlation value obtained from the detected signal S28 and S29 and the correlation value is outputted as the detected signal S42, column 7, lines 39-42); and

detecting a match between the first and second pseudo-noise codes based upon a match count peak (detector 47A to 47G in figure 8 output the correlation values as the detected signal S45A to S45G, the maximum likelihood output circuit 48 compares the intensity of the correlation values obtained from the detected signal S45A to S45G and regards the value having the strongest correlation as a reliable timing, column 8, lines 20-31).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mayrargue (US 2004/0234005 A1) in view of Sugita et al. (US 5,862,172).

Mayrargue discloses all the subject matter as discussed in claim 1 above except transmitting a first pseudo-noise code as a bit wise inverted version of an original code.

However, Sugita et al. discloses transmitted of a first pseudo-noise that can be inverted (column 19, lines 17-20).

It is desirable to transmit a first pseudo-noise code as a bit wise inverted version of an original code because it can improve the detection accuracy (column 2, lines 10-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Sugita et al. in the method of Mayrargue to improve the reliability of the method.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mayrargue (US 2004/0234005 A1) in view of Partyka (US 6,925,105 B1).

Mayrargue discloses all the subject matter as discussed in claim 1 except the transmitting a pseudo-noise code wherein selection of the code depending upon a transmitting device.

However, Partyka discloses a transmission method that includes a portions of the transmission ID code of the transmitter for the receiver to identify the transmitter (column 4, lines 62-67).

It is desirable to for the selection of the code depends on a transmitting device because it aid the receiver in obtaining synchronization with a transmitter whose ID is known (column 5, lines 19-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Partyka in the method of Mayrargue to improve the performance by shortening the synchronization time.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mayrargue (US 2004/0234005 A1) in view of Varney et al. (US 2004/0095954 A1).

Mayrargue discloses all the subject matter as discussed in claim 1 except wherein selection of the code depends upon an event.

However, Varney et al. discloses using a code to identify an emergency situation the emergency service personnel use their mobile subscriber station 101 to transmit an SMS message to the Short Message Service Center 104, with data that identifies the emergency service personnel (e.g. user name) and a passcode, which typically comprises the above-noted code word that identifies the existence of an emergency situation to initiate the retrieval of the priority call access code, paragraph 0022, lines 1-10).

It is desirable to select a code depends upon an event because priority call access code are guaranteed wireless communication service (paragraph 0005, lines 5-7). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Varney et al. in the method of Mayrargue to provide a more reliability method for emergency situation.

12. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mayrargue (US 2004/0234005 A1) in view of Poon et al. (US 2003/0128747 A1).

Mayrargue discloses all the subject matter as discussed in claim 1 except the method comprising filtering outputs resulting from the detecting to identify sharp peaks.

However, Poon et al. discloses a peak filter module 278 suppresses false peaks from the input of peak analyzer module 276 before identify sharp peaks (paragraph 0099, lines 4-6).

It is desirable to filter outputs resulting from the detecting to identify sharp peaks because it can reject false peaks (paragraph 0095, lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Poon et al. in the method of Mayrargue to improve the reliability of the method.

13. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita et al. (US 5,862,172) in view of Kurihara et al. (US 4,943,975).

(1) Regarding claim 14:

Sugita et al. discloses a receiver that receives a pair of pseudo-noise code (PN code transmitted by the PN gen 23 and PN gen 24 in the transmitter in figure 3A, the receiver in figure 3B receives first and second PN codes S20 and S21 from the initial synchronization signal portion in the receiving signal S27, column 5, lines 51-53).

Sugita et al. fails to disclose a first register to store a first pseudo-noise code; a second shift register to store a second pseudo-noise code in the time reversed order; a comparison circuit to compare contents of the first register to contents of the second register and output a match count result.

However, Kurihara et al. discloses a first register (register SR1 in figure 5) to store correlation pulse and a second register (register SR2 in figure 5) to store in time

reversed order and a comparison circuit (pulse counter 12 and comparator 13 in figure 4) to compare content of the first register to content of the second register and output a match count result (the pulse counter 12 counts the total number of pulses outputted in parallel by the shift registers and converts the count into binary data, which are outputted to the comparator 13, the comparator 13 compares the binary data outputted by the pulse counter 12 with a threshold value set by the external circuit and outputs a pulse, when the binary data have reached the threshold value, column 9, lines 32-57).

It is desirable to have a first register to store a first pseudo-noise code; a second shift register to store a second pseudo-noise code in the time reversed order; a comparison circuit to compare contents of the first register to contents of the second register and output a match count result because it provides a stable synchronization in the correlator without any erroneous operations due to noises (column 3, lines 54-56). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Kurihara et al in the receiver of Sugita et al. to improve the performance of the receiver.

(2) Regarding claim 15:

Kurihara et al. further discloses that the first register comprising a shift register (the shift register 11 consists of a plurality of shift registers SR1 to SR2, column 9, lines 32-34).

(3) Regarding claim 16:

Kurihara et al. further discloses the second register comprising a shift register to shift data in a direction opposite a direction of the first register (the shift register SR1

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and SR2 connected in series with each other as indicates in figure 5, column 9, lines 32-34)

14. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita et al. (US 5,862,172) in view of Kurihara et al. (US 4,943,975) as applied to claim 14 above, and further in view of Poon et al. (US 2003/0128747 A1).

Sugita et al. and Kurihara et al. discloses all the subject matter as discussed in claim 14 except the device comprising a filter to filter the result and identify sharp peaks.

However, Poon et al. discloses a peak filter module 278 suppresses false peaks from the input of peak analyzer module 276 before identify sharp peaks (paragraph 0099, lines 4-6).

It is desirable to use a filter to filter the result and identify sharp peaks because it can reject false peaks (paragraph 0095, lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Poon et al. in the device of Sugita et al. and Kurihara et al. to improve the reliability of the device.

15. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita et al. (US 5,862,172) in view of Kurihara et al. (US 4,943,975) as applied to claim 14 above, and further in view of Roth (US 4,032,885).

Sugita et al. and Kurihara et al. discloses all the subject matter as discussed in claim 14 except the comparison circuit comprising an exclusive OR gate array.

However, Roth discloses that a comparator make up of a network of exclusive OR gates (column 1, lines 62-67, exclusive OR gate 76 in figure 5, column 6, lines 40-42).

It is desirable for the comparison circuit comprising an exclusive OR gate array because it provides an improved error tolerant bit pattern detector which is simple and economical (column 2, lines 30-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Roth in the device of Sugita et al. and Kurihara et al. to simplify and reduce production cost of the device.

16. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita et al. (US 5,862,172) in view of Kurihara et al. (US 4,943,975) as applied to claim 14 above, and further in view of Harms et al. (US 6,493,376 B1).

Sugita et al. and Kurihara et al. discloses all the subject matter as discussed in claim 14 except the device comprising a memory to store one of the first pseudo-noise code or the second pseudo-noise code as a received code.

However, Harms et al. discloses a memory (memory element 144 in figure 12) that can store one of the first pseudo-noise code or the second pseudo-noise code as a received code (column 23, lines 51-55).

It is desirable to have a memory to store one of the first pseudo-noise code or the second pseudo-noise code as a received code because it saves time for recovering the code when it is need. Therefore, it would have been obvious to one of ordinary skill in

the art at the time of invention to combine the memory element of Harms et al. with the device of Sugita et al. and Kurihara et al. to provide a more efficient device.

Allowable Subject Matter

17. Claim 20 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mack et al. (US 2005/0175072 A1) discloses an encoding scheme for data transfer. Komatsu et al. (US 4,638,497) discloses a framing code detector for a teletext receiver. Tamer et al. (US 5,619,501) discloses a conditional access filter as for a packet video signal inverse transport system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Siu M. Lee whose telephone number is (571) 270-1083. The examiner can normally be reached on Mon-Fri, 7:30-4:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Siu M Lee
Examiner
Art Unit 2611
6/15/2007


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER